

Patent Abstracts of Japan

PUBLICATION NUMBER : 04265131
PUBLICATION DATE : 21-09-92

APPLICATION DATE : 21-02-91
APPLICATION NUMBER : 03048870

APPLICANT : UBE IND LTD;

INVENTOR : YAMAGUCHI MASAHIKO;

INT.CL. : B01D 69/08 A61M 1/18 D01D 5/24 // B01D 71/26

TITLE : PRODUCTION OF POROUS HOLLOW FIBER MEMBRANE

ABSTRACT : PURPOSE: To produce a porous hollow fiber membrane preferably usable as a gas exchange membrane for an artificial lung preventing a leak of serum even after use for a long time and a gas separation membrane for oxygen enrichment.

CONSTITUTION: A thermoplastic porous hollow fiber membrane is heat-treated in an atmosphere at the m.p. or pour point of the material of the membrane or above to partially melt the outer surface of the membrane. By this melting, a dense layer is formed in the outer surface and a porous hollow fiber membrane having a double-layered structure composed of porous and dense layers is produced.

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AN - 1992-362452 [44]

A - [001] 014 03- 04- 041 046 050 30& 387 428 43& 466 470 481 51& 540 56&
57& 575 58& 595 596 604 608 623 624 643 645 688

AP - JP19910048870 19910221; JP19910048870 19910221; [Previous Publ.
J04265131]

CPY - UBEI

DC - A88 E36 J01 P34

DR - 1779-P

FS - CPI;GMPI

IC - A61M1/18 ; B01D69/08 ; B01D71/26 ; D01D5/24

KS - 0229 0231 0248 2371 2413 2471 2483 2500 2653 2654 2667 2765 2768 3245
3255 3256 3270

MC - A11-B02 A12-S05A A12-S05U A12-W11A E11-Q01 E31-D01 J01-C03 J01-D02
J01-E03E

M3 - [01] C108 C550 C810 M411 M720 M903 M904 M910 N104 N164 R013; R01779-P;
9240-7

PA - (UBEI) UBE IND LTD

PN - JP4265131 A 19920921 DW199244 B01D69/08 003pp

- JP2553248B2 B2 19961113 DW199650 B01D69/08 003pp

PR - JP19910048870 19910221

XA - C1992-160933

XIC - A61M-001/18 ; B01D-069/08 ; B01D-071/26 ; D01D-005/24

XP - N1992-276166

AB - J04265131 Membrane with a dense skin layer on its outer surface is produced. A raw thermoplastic porous hollow fibre membrane is heated at a temp. above its melting or flow point, so that the outer surface of the membrane is partially fused and that a dense skin layer free of pores or with smaller pores is developed.

- USE/ADVANTAGE - Used to produce hollow fibre membranes for gas sepn. They are used for artificial lungs or oxygen enrichment. The skin layer has no pores or smaller pores, so that blood plasma is hardly penetrated out of the membrane when it is used as artificial lungs.
- In an example, 'UBE-PP-F109' (RTN, polypropylene, Ube Kosan Corp) was spun into a porous hollow fibre with 230 micron inside dia. 350 micron outside dia. and 0.22 microns average micropore size. The hollow fibre was heated in the air at 180 deg.C for 30 sec. A dense skin layer free of pores was developed. (Dwg.0/0)

CN - R01779-P

DRL - 9240-7

IW - MANUFACTURE POROUS HOLLOW FIBRE MEMBRANE DENSE OUTER SKIN
HEAT

THERMOPLASTIC POROUS HOLLOW FIBRE MEMBRANE SO SURFACE
MEMBRANE FUSE

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MEMBRANE FUSE

NC - 001

OPD - 1991-02-21

ORD - 1992-09-21

PAW - (UBEI) UBE IND LTD

(C) WPI/Derwent

TI - Mfg. porous hollow fibre membrane with dense outer skin - by heating thermoplastic porous hollow fibre membrane so surface of membrane is partially fused